U.S. HOUSE OF REPRESENTATIVES

COMMITTEE ON SCIENCE

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March 7, 2006

The Honorable Jim Nussle
Chairman
Committee on the Budget
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

Pursuant to the provisions of clause 4(f) of House Rule X of the Rules of the House of Representatives for the 109th Congress and Section 301(d) of the Congressional Budget Act of 1974, as amended, I am transmitting the Views and Estimates of the Committee on Science for Fiscal Year 2007.

Sincerely,

SHERWOOD BOEHLERT
Chairman

SB/dm
Enclosure

Cc: The Honorable Bart Gordon
The Honorable John M. Spratt, Jr.

VIEWS AND ESTIMATES
COMMITTEE ON SCIENCE
FISCAL YEAR 2007

BACKGROUND

As the House and Senate begin consideration of the President's Fiscal Year (FY) 2007 budget request, there is no question that a great deal of debate will revolve around the budget deficit and its impact on the long-term economic health of the Nation. As these discussions move forward, the Science Committee urges Congress to recognize the importance and contributions of science and technology to productivity and economic growth – and consequently – fiscal security.

Indeed, nothing benefits federal revenues over the long-term as much as accelerated economic growth, and nothing fuels long-term growth more than science and technology. With that in mind, the President has proposed the *American Competitiveness Initiative*, which aims to strengthen American innovation and maintain the U.S. position as a global economic leader by increasing the federal investment in basic research, improving math and science education, and providing tax credits to stimulate private sector research and development. The Committee strongly supports the *American Competitiveness Initiative* and the related *Advanced Energy Initiative.*

Further, the strength of the U.S. scientific enterprise has long been a crucial component of America's national security. Advancements in science and technology were critical to the nation's ability to triumph in the Cold War. (Indeed, Cold War-era investments in science and technology, especially those made in the wake of the Soviet launch of Sputnik, laid much of the foundation for the broad, successful scientific and engineering enterprise the U.S. boasts today.) New ideas, understandings and technologies spawned by research and development are just as essential to winning the war against terrorism.

SCIENCE COMMITTEE AGENDA

In the second session of the 109th Congress, the Science Committee's top priority will be to see that the appropriations required to carry out the President's *American Competitiveness Initiative* are enacted. To the extent that authorizing legislation is required to support and guide appropriations related to the initiative, the Committee will move such legislation.

The Committee will also work to enact legislation passed out of Committee during the first session, including a National Oceanic and Atmospheric Administration (NOAA) organic act, a bill authorizing tsunami detection, warning, education and research programs, a bill authorizing an interagency green chemistry R&D program, a reauthorization of the High-Performance Computing Act of 1991 (P.L. 102-194), and a bill authorizing research on environmental cleanup of methamphetamine labs.

The Committee also will conduct ongoing oversight of the agencies and programs it has helped put into place, including the work of the Department of Homeland Security (DHS) Science and Technology (S&T) Directorate, and important interagency research and development (R&D)

activities such as nanotechnology, climate change research, networking and information technology, cybersecurity, and math and science education programs. The Committee will continue to conduct close oversight of weather satellite programs at NOAA and the climate change technology programs at the Department of Energy (DOE).

OVERALL R&D FUNDING

The President proposes to spend $137.2 billion on R&D in FY07, about a 2.6 percent increase over FY06. The proposed R&D budget increases are heavily weighted toward development, which would receive a 7 percent increase, while basic research would receive a 1 percent increase, and applied research would decline by 7 percent.

As part of the *American Competitiveness Initiative*, the budget request includes significant funding increases – a total of about $1 billion – for three agencies that support the physical sciences and engineering research critical to American innovation: the National Science Foundation (NSF), the DOE Office of Science, and the National Institute of Standards and Technology (NIST). The proposed funding increases are targeted to high-priority research areas, including alternative energy technologies, nanotechnology, supercomputing, manufacturing, cybersecurity, the performance of structures during disasters, and improvements in the U.S. scientific infrastructure, such as research facilities and government laboratories. The Committee believes that these investments are critical to support the development of the next generation of transformative technologies and urges that the requested funds be provided.

INTERAGENCY ACTIVITIES

Presidential Initiatives

The Administration's budget highlights five "multi-agency R&D priorities" and provides a precise budget breakdown for three of them—nanotechnology, climate change science, and networking and information technology. The Committee strongly endorses these initiatives, and agrees that they deserve priority in funding.

The Administration proposes a 1.8 percent decrease from the FY06 estimated funding level for the interagency program on nanotechnology. This decrease is mainly due to removal of funding appropriated for specific projects at the Department of Defense and the National Aeronautics and Space Administration (NASA). The Committee is very pleased that for the five agencies under the Science Committee's jurisdiction that participate in the nanotechnology program (NSF, DOE, NIST, NASA, and the Environmental Protection Agency (EPA)), the FY07 budget requests a 10.1 percent increase over the FY06 level. The Committee believes that Congress should fund these activities, to the extent possible, at the levels called for by the *21st Century Nanotechnology Research and Development Act* (P.L. 108–153) and particularly urges increased funding for research on potential environmental and safety issues associated with nanotechnology.

The Committee continues to support the interagency Climate Change Science Program (CCSP), for which the Administration has proposed to spend $1.7 billion, about the same level as in

FY06. As part of the CCSP, the Committee continues to support the interagency Climate Change Research Initiative (CCRI), which focuses on shorter-term research to support improved public debate and decision-making. The FY07 request is $200 million for CCRI, which is about the same level as enacted in FY06.

Information technology research has played a critical role in U.S. economic strength over the past several decades. Consistent with the President's prioritization of areas that contribute to U.S. competitiveness, the budget request recommends $3.07 billion for the interagency program on Networking and Information Technology Research and Development (NITRD) in FY07, a 7.7 percent increase over FY06. The Committee applauds the increased funding for important areas such as high-end computing systems and software and urges the funding be provided for NITRD at or above the requested level.

While cybersecurity R&D is not a formal Presidential initiative, significant effort is being put into programs in this area at a number of agencies as authorized in the *Cyber Security Research and Development Act* (P.L. 107-305). The Committee is particularly pleased to note that increases in funding in the area have been requested for FY07 at NSF, NIST, and DHS and urges funding at or above these levels. The Committee also is pleased that coordination of cybersecurity and information assurance is being integrated into the NITRD interagency coordination process.

The Committee also endorses the two other multi-agency R&D initiatives, which relate to combating terrorism (discussed in the next section) and to hydrogen (discussed in the section on DOE).

RECOMMENDATIONS FOR AGENCIES

FULL COMMITTEE

Department of Homeland Security (DHS)

The Committee wrote the portion of the *Homeland Security Act of 2002* (P.L. 107-296) that created the DHS S&T Directorate, and has exercised close oversight of DHS R&D programs since the Department's inception. The Committee is concerned that the Administration has requested a 33 percent decrease in funding for the S&T Directorate. While a significant part of the decrease ($334 million) reflects the transfer of almost all nuclear and radiological programs to the DHS Domestic Nuclear Detection Office (DNDO), the programs remaining within DHS S&T still would be reduced by $151 million, 13 percent below FY06. Much of the reduction ($104 million) is due to the conclusion of a program to develop countermeasures to shoulder-fired anti-aircraft missiles.

The Committee is particularly concerned about the significant reduction proposed for work on standards for homeland-security related equipment. This decrease will hamper DHS's ability to provide standards and guidelines for the performance and use of existing commercial technologies as well as for novel products being developed by other DHS programs. The Committee is also concerned about proposed decreases for work in the area of emergent and

prototypical technologies. Reductions in this area will limit DHS's ability to perform basic research in vulnerability characterization and countermeasure identification and to quickly address DHS-specific requirements for technology development.

The Committee is pleased with the $8.3 million increase proposed for cybersecurity R&D and supports the request.

The Committee remains concerned about the balance between short- and long-term research programs at DHS. There is increasing emphasis on development to meet near-term requirements and diminishing funding directed at more basic research. Such research is needed to ensure that the nation is adequately prepared for future threats and that the nation has a cadre of S&T professionals with appropriate training.

The Committee is also concerned about how DHS will balance its research priorities, given that the agency must deal with a wide range of threats—from cyberattacks to dirty bombs to foot and mouth disease—through technologies that must be able to be used in a wide variety of environments. Declining funding will make priority-setting even more essential. DHS will need to develop robust methods to determine which threats pose the greatest risks to help determine the distribution of funding across its portfolios.

SUBCOMMITTEE ON ENERGY

Department of Energy (DOE)

The Committee has jurisdiction over DOE's non-military national laboratories, civilian energy research, development and demonstration programs, and commercial application of energy technology activities.

Office of Science

The Committee strongly endorses the Administration for its support of the Office of Science as part of the *American Competitiveness Initiative*. The Administration meets the levels authorized for the Office of Science in the *Energy Policy Act of 2005* (P.L. 109-58) with its request of $4.1 billion for FY07, a 14 percent increase over FY06. This $505 million increase is 50 percent larger than the largest increase requested for the Office of Science in the preceding decade. The Committee believes the FY07 request will restore to health the Office of Science, an office which provides more than 40 percent of Federal support for basic research in the physical sciences. The Administration's outyear commitment to provide annual increases averaging roughly 7 percent over the next 10 years will enable dramatic advances in the cutting-edge research underpinning our economic competitiveness and national security.

Using the funding requested for FY07, the Office of Science will be able to operate its suite of scientific user facilities on average 96 percent of their optimal number of operating hours, up from 88 percent in FY06. For Nuclear Physics, the improvement is dramatic – facilities will be able to operate at 84 percent of optimum compared to 50 percent in FY06. DOE's neutron sources and x-ray light sources will have the resources necessary to modernize beamlines and

other high-tech instrumentation, considerably improving the scientific productivity of these sources. Just as significantly, the FY07 request allows the Office of Science to bring on line the new Spallation Neutron Source (SNS) and four of five Nanoscale Science Research Centers. The Committee enthusiastically supports the FY07 funding levels that allow the Office of Science to re-instrument and maximize operations of its growing suite of scientific user facilities. The Committee believes these facility operations are one of the primary benefits the Office of Science provides to the researchers at universities, in industry, and in government labs across the nation.

The request also allows the Office of Science to seize scientific opportunities by implementing key components of its 20-year facilities plan. The request includes $60 million for FY07 in the Fusion Energy Sciences program for ITER, the plan's top priority. Investments are made in leadership computing facilities at Oak Ridge and Argonne National Laboratories that significantly advance the plan's second-ranked priority to develop ultrascale scale scientific computing capabilities. An additional $20 million keeps project engineering and design (PED) funding on track for the Linac Coherent Light Source at Stanford, one of the third-ranked priorities in Science's facilities plan. The Committee believes that PED funding for National Synchrotron Light Source II (NSLS II), an upgrade to the existing light source at Brookhaven National Laboratory, is a nationally important investment.

The Committee is disappointed, however, that the budget requests neither construction funding, nor PED funding, nor even R&D funding for the Rare Isotope Accelerator (RIA), a nuclear physics facility accorded high priority in the early period of the 20-year facilities plan. The budget does continue to request $4 million for exotic beam R&D, which are the capabilities RIA or a RIA-like machine would deliver. In light of the lack of PED funding for RIA, it is difficult to see how the Administration will be able to meet its obligation under section 981 of the *Energy Policy Act of 2005* to commence construction of the facility no later than September 30, 2008.

Finally, the Committee notes with pleasure the balance struck between support for researchers (45 percent) and the operation of national scientific user facilities (38 percent). For example, major increases in research support are seen in university-based nuclear physics, which is up by 17 percent; the development of advanced computing software, which is up by 51 percent; and nanotechnology research, which is up by 62 percent. Funding within the Office of Science for the President's Hydrogen Fuel Initiative increases 54 percent to $50 million. The Committee is concerned that climate change research is reduced $6.6 million, including reductions to ocean carbon sequestration research (cut by $4.9 million) and climate modeling (cut by $1.5 million).

Applied Energy R&D

The Committee applauds the increases in funding proposed for renewable energy research as part of the *Advanced Energy Initiative*. In particular, the Administration requests increases for solar, wind, and biomass research, which collectively grow by 45 percent. The Committee is also pleased with the increase in funding for long-term hydrogen R&D. Combined, such activities will help reduce U.S. dependence on fossil fuels. However, the Committee is concerned by the accompanying decrease in funding across the board for efficiency programs. With the noted exceptions of advanced battery research, and equipment standards and analysis funding, most

activities in the Buildings program, the Vehicles program, and the Industries program suffered from the zero-sum nature of funding for the Office of Energy Efficiency and Renewable Energy: overall, the Office receives a 0.2 percent increase, insufficient to keep up with inflation. Given the generally short- to mid-term, moderate-risk and high-payoff nature of energy efficiency activities, the Committee is concerned that the proposal misses an opportunity to couple short-term demand reductions—and the associated potential for lower prices—with longer-term policies to move away from foreign energy supplies.

In Nuclear Energy, the Committee applauds the increase in funding, much of which will go toward the *Advanced Fuel Cycle Initiative*. The Committee is concerned, however, that the underlying simultaneous commitments to several new project starts—the sodium-cooled fast reactor, the high-temperature gas reactor, and the demonstration-scale nuclear fuel reprocessing plant—all require large outyear commitments of funds. Therefore, the Committee especially applauds the Administration's commitment to conduct a comprehensive and rigorous systems analysis of the advanced fuel cycle and its associated research facility needs. The Committee is also concerned with the proposal to eliminate University Reactor Infrastructure and Education Assistance, especially in light of the recent announcement of the President's *American Competitiveness Initiative*. The university funding has provided crucial support to a new generation of nuclear science and engineering students who will help continue U.S. advancements in nuclear energy and security.

In Fossil Energy, the Committee applauds the increase in funding to keep the FutureGen project on schedule. FutureGen is a coal-based power plant that would capture and dispose of carbon dioxide (CO_2), resulting in near-zero emissions. The Committee also applauds the funding of the associated carbon sequestration science activities necessary to extend the lessons from FutureGen across the country.

The Committee notes with concern the 22 percent reduction proposed for the Office of Electricity Delivery and Energy Reliability. DOE has noted that this office, formerly the Office of Electric Transmission and Distribution, has been restructured to "capitalize on the complementary synergies and programmatic alignments that have emerged since the merger of its predecessor organizations." While the Committee supports DOE efforts to obtain synergies and efficiencies, it also notes that this Office is responsible for R&D to ensure transmission grid reliability, and hopes that these changes do not result in reduced emphasis on this important effort. This Office is now responsible for Distributed Energy Resources (DER), the primary home of many combined heat and power technologies that the Committee has encouraged in the past. The Committee is concerned that the 48 percent reduction in DER programs appears to go beyond synergies and likely will result in staff and contractor layoffs.

The Climate Change Technology Program (CCTP) is a cross-cutting effort that includes activities in almost all of DOE's applied R&D programs. The Administration anticipates releasing a tally of its FY2007 request for the CCTP in late March. Currently, it is possible to determine that many of the major CCTP components are up or flat. The most important recent development in the program was the release on August 5, 2005 of the CCTP draft strategic plan for public comment. The Committee is disappointed with both the content of the plan and the long delay in its release. The Committee is concerned the draft strategic plan does little to

advance the Administration's position that advanced technology development must form the core of the national response to climate change.

SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY AND STANDARDS

Environmental Protection Agency (EPA)

EPA's Office of Research and Development (ORD) is responsible for 80 percent of EPA's R&D activities, and it receives the majority of funds available in the agency's Science and Technology (S&T) account. ORD serves a unique role in environmental R&D: it conducts the basic and applied research that supports EPA's regulatory programs and investigates the next generation of environmental challenges. To meet these needs, ORD conducts intramural research at EPA's many laboratories, and it supports extramural research at colleges and universities through the Science to Achieve Results (STAR) grant program.

The FY07 the budget request includes $788 million for S&T at EPA, an apparent 8 percent ($58 million) increase from the FY06 enacted level of $730 million. However, that figure includes an accounting change, which transfers $62 million from the Environment Programs and Management (EPM) account to the S&T account. The accounting change is intended to more accurately allocate facility rents to the appropriate account. Although the Committee has no objection to the accounting change, the $62 million has been excluded from the Committee's analysis to enable a meaningful comparison between the FY07 request and the FY06 enacted budget. Excluding the accounting change, the S&T budget request is $726 million, 1 percent less than the FY06 enacted level.

The Committee is concerned by the continuing erosion in funding for the Office of Research and Development (ORD). Under the President's FY07 request, ORD's total budget would decrease to $557 million, 6 percent ($38 million) less than the FY06 enacted level, both because of the elimination of earmarks and because S&T funding that otherwise would have been available to ORD is going to other offices within EPA (in particular for homeland security work). More troubling is the overall trend in ORD's funding level. The FY07 request for ORD would be its lowest since FY00 and 14 percent less than its peak funding level of $646.5 million in FY04. The decline in resources, coupled with ORD's newer responsibilities in the important area of homeland security, is eroding ORD's ability to carry out its traditional environmental research responsibilities.

The Committee supports the request of $9 million for research on the implications of nanotechnology, a nearly 80 percent increase over the FY06 enacted level. At a recent Committee hearing on nanotechnology, industry observers called for a substantial increase in the federal R&D investment in environmental implications of nanotechnology.

The Committee supports the agency's $0.5 million proposal to improve its Integrated Risk Information System (IRIS), the agency's electronic database of human health effects that may result from exposure to various chemicals. The Committee will be watching these reforms

carefully to ensure they do not lead to undue delays in updating information in IRIS or compromise the integrity and public health protections IRIS is designed to support.

The Committee strongly supports EPA's role in homeland security and agrees with the agency's FY07 goals to increase decontamination research and expand the Water Sentinel pilot program that is helping develop a drinking water monitoring and surveillance system. The knowledge that would be gained from Water Sentinel could be critical in the event of a chemical or biological attack on the nation's drinking water systems. However, the Committee is concerned that the agency's heavy reliance on the S&T account to fund homeland security activities would continue to erode ORD's investments in other important areas of environmental research.

In particular, in EPA's homeland security budget request the Committee is concerned with the source of funding for the Water Sentinel pilot project. EPA requests $45 million from the S&T account for the Water Sentinel pilot, a more than 500 percent increase over the FY06 enacted level of $8.1 million. Water Sentinel is a hybrid program managed by the Office of Water, but involving R&D and more traditional water system operations. The Committee believes that funding for the program should be drawn from multiple accounts, rather than exclusively from the S&T account. The savings from this arrangement could be used to restore core ORD research programs discussed in more detail below.

The Committee is disappointed with the proposed $7 million (8 percent) reduction from the FY06 enacted level in ORD's Ecosystem Research. If enacted, it would culminate in a $28 million (26 percent) reduction since 2004. Among the most troubling decreases within this program is the proposed $3.4 million (or 26 percent) reduction in the Science to Achieve Results (STAR) Graduate Fellowships. The Committee believes the fellowship program should be funded at $10 million, the level restored by Congress in each year beginning with FY03. The Committee is also concerned about the proposed $5 million reduction in the Environmental Monitoring Assessment Program, (EMAP), which supports states' measurements of water quality conditions.

The Committee is also disappointed with further reductions in ORD's Sustainability Research program (formerly called the Pollution Prevention Research). The FY07 request proposes an $8 million or 23 percent decrease from the FY 06 enacted level of $29 million, and would result in a 43 percent decline since 2005. Past requests have sought to reduce funding for the Environmental Technology Verification (ETV) program, and the FY07 request eliminates the entire program ($3 million). The ETV program verifies the performance of a new technology at the request of and with joint funding from a technology manufacturer. The program was originally created to help technology developers convince prospective purchasers that a new, innovative technology would perform as promised.

The Committee also plans to examine the following proposed reductions: (1) the termination of the mandatory Superfund Innovative Technology Evaluation (SITE) program, which demonstrates innovative clean up technologies; (2) a reduction in the global change research program, (3) flat funding for the Advanced Monitoring Initiative (EPA's contribution to the Global Earth Observing System of Systems); and (4) a $4 million (16 percent) reduction in

pesticide and toxics research that will slow research on high volume chemicals and endocrine disruptor chemicals.

Department of Commerce – Technology Administration/National Institute of Standards and Technology (TA/NIST)

The National Institute of Standards and Technology is the nation's oldest federal laboratory. Its mission explicitly includes promoting U.S. innovation and industrial competitiveness. Because NIST consistently provides high-quality, cutting-edge research in a wide range of scientific and technical fields critical to U.S. industry, it is perfectly placed to play a central role as proposed in the President's *American Competitiveness Initiative*.

The budget request includes $467 million for the core NIST laboratory programs and facilities as part of the President's *American Competitiveness Initiative*. This increase includes $72 million for new research initiatives and enhancements to NIST's user facilities, an 18 percent increase over FY06. The Committee enthusiastically supports this request, as it represents a significant and sensible investment in programs that keep the U.S. at the forefront of economically important emerging technologies.

The Committee also strongly supports the budget request of $68 million for NIST's construction account. This includes $12 million for construction expenses at the NIST Center for Neutron Research, which will allow more scientists to use this unique, world-class facility. The request also includes $10 million in the Safety, Capacity, Maintenance, and Major Repairs (SCMMR) account for building maintenance at NIST's laboratory in Boulder, Colorado. The Committee believes this funding will have a positive effect on the efficiency and stability of many of NIST's research projects in Boulder. Currently, fluctuations in the environmental and electrical systems at the Boulder labs frequently disrupt research at the labs and the maintenance will allow the scientists to focus on their important work.

The Committee continues to support the Advanced Technology Program (ATP) and is concerned that the Administration has again requested no funds for the program and is seeking to terminate the program. The Committee is concerned that terminating ATP would reduce the NIST laboratory budget since 10 percent of ATP funds, $8 to $13 million a year, was spent inside NIST.

The Committee is disappointed that the Administration has requested only $46 million for the Manufacturing Extension Partnership (MEP) program. This would cut the program by 56 percent from the $106 million appropriated in FY06, leaving the national network of Centers with insufficient funding to maintain their assistance to small and medium-sized manufacturing firms. MEP has demonstrated its effectiveness as the only program (private or public) that offers direct technical assistance to small and medium-sized manufacturers. The federal government funds only a third of the operating expenses of the MEP Centers, with the remainder shared between states and users. The House has spoken overwhelmingly in favor of MEP, both through amounts appropriated in FY05 and FY06 and in the passage of H.R. 250, *the Manufacturing Technology Competitiveness Act of 2005*.

Department of Commerce – National Technical Information Service (NTIS)

The Committee looks forward to working with the Administration to keep NTIS functioning as a self-sustaining entity and would like to explore, with the Department of Commerce, ways that NTIS can contribute to innovation in the U.S. economy.

Department of Commerce – National Oceanic and Atmospheric Administration (NOAA)

Among other activities, NOAA provides weather forecasts and warnings, charts the seas for navigation, develops guidelines for the use and protection of ocean and coastal resources, and performs research to improve understanding of marine, coastal and atmospheric environments. The Committee has jurisdiction over four of NOAA's five line offices—the National Ocean Service, the Office of Atmospheric and Oceanic Research, the National Environmental Satellite Data and Information Service, and the National Weather Service.

The FY07 budget request for NOAA is $3.7 billion, a decrease of $227 million (6 percent) compared to the FY06 enacted level of $3.9 billion. Most of the reduction is due to the elimination of earmarks, and the Committee supports the proposed overall level of funding for NOAA.

The Committee supports the request of $882 million for the National Weather Service (NWS), an increase of $33.6 million (4 percent) over the FY06 enacted level. The increase includes $29 million to develop, operate, and maintain a variety of warning and forecast systems such as the Tsunami Warning Program, the Air Quality Forecasting Program, and the Wind Profiler Network (which is important for tornado, severe storm, and flash flood forecasting). Also in NWS, the Committee supports the request of $7.5 million for the U.S. Weather Research Program. This $2.5 million (50 percent) increase over FY06 levels will accelerate current research efforts to improve hurricane forecasting models.

The Committee also supports the request in the Office of Atmospheric and Oceanic Research for $13 million for high performance computing (100 percent or $6.5 million increase over FY06 enacted levels). High performance computing is integral to NOAA's ability to provide timely and accurate weather forecasts and warnings, including those for hurricanes.

The Committee supports the request of $1 billion for satellite programs at NOAA. This request is an $82 million (8.6 percent) increase over the FY06 enacted level of $952 million. The increase is for the procurement, acquisition, and construction of the next generation of weather satellites, and it is in line with the long-term budget plans for these satellite systems. Satellite funding in FY07 is particularly important because NOAA plans to let the prime contract for its next generation of geostationary satellites.

Also, the Committee remains concerned about cost overruns and technical challenges that have delayed the launch date for NOAA's new polar satellite system, the National Polar-orbiting Operational Environmental Satellite System (NPOESS). The Committee recently held a hearing about NPOESS and learned it is currently running as much as $3 billion (more than 25 percent) over budget and as many as three years behind schedule. The NPOESS program is in the midst

of a detailed external review and currently no increased funding is anticipated (or requested) in the FY07 budget. However, additional funding will be required in future years, and the Committee is extremely concerned that NOAA has not explained how it can pay for those increases without damaging other programs.

The Committee strongly supports NOAA's request for $27 million for satellite data product processing and distribution, and $25 million for satellite product development, readiness and application. The Committee is concerned about NOAA's current and future capability to utilize, manage, and store satellite and weather data critical for forecasting and research. These funding levels will ensure that the nation can take full advantage of the large investment in satellites through timely and useful satellite data products.

SUBCOMMITTEE ON RESEARCH

National Science Foundation (NSF)

NSF is the primary source of federal funding for non-medical basic research conducted at colleges and universities. NSF funds basic research across nearly all disciplines of science and engineering, making NSF-supported research integral to progress in national priority areas such as health care, national security, and other areas of importance where U.S. innovation is the key to maintaining our competitive advantage. In addition, NSF sponsors programs to improve K-12 and undergraduate education, and its fellowships and research assistantship programs support many graduate and post-doctoral students.

NSF continues to receive high marks from the Office of Management and Budget for the quality of its management and the excellence of its programs. NSF is one of only three agencies (of the 26 evaluated) to be awarded four or more green lights on the Executive Branch Management Scorecard. In addition, ten NSF programs have been examined to date using Office of Management and Budget's Program Assessment Rating Tool (PART) analysis, and all ten programs received ratings of "effective," the highest possible rating. NSF remains the only agency in the Federal government to receive the highest rating on every program that underwent a PART evaluation.

As part of the *American Competitiveness Initiative*, the FY07 budget request for NSF is $6.02 billion, an increase of 7.9 percent, or $439 million over the FY06 level. The funding increase in the FY07 budget mainly goes to scientific research programs and research facilities and is spread fairly evenly among all fields NSF supports, including engineering, non-biomedical life sciences, physics, and geosciences. The Committee strongly endorses the proposed overall budget level proposed for NSF, while acknowledging that even with that healthy increase, funding will lag behind the levels authorized in the *National Science Foundation Authorization Act of 2002* (P.L. 107-368).

While the Committee is pleased to see funding increases across all NSF research fields, it is deeply troubled by the modest 2.5 percent increase for NSF's Education and Human Resources (EHR) directorate, given the President's emphasis on math and science education in the *American Competitiveness Initiative*. Since 1950, NSF has been tasked with strengthening math

and science education programs at all levels, and NSF's education programs are unique in their peer review processes, their linkage to higher education and their resulting capacity to develop new and improved materials and assessments, create better teacher training techniques and move promising ideas from research to practice. The budget request of $816 million for NSF Education and Human Resources (EHR) Directorate for FY07 allows for only about inflationary growth over FY06 and does little to restore the significant funding reductions that have occurred since FY04. In addition, within EHR, funding for elementary, secondary and informal education programs and research and evaluation activities would continue to decline. The Committee recommends that NSF EHR receive at least $913 million in FY07, with particular emphasis on increasing funding for the new Division of Research on Learning in Formal and Informal Settings, the Robert Noyce Scholarship Program, the Science, Technology, Engineering, and Mathematics Talent Expansion Program; the Course, Curriculum and Laboratory Improvement program, and the Math and Science Partnership program.

United States Fire Administration (USFA)

The U.S. Fire Administration (USFA), which is now part of DHS, was created in 1974 to aid localities in reducing the loss of life and property from fires and related emergencies. The budget request for USFA is $46.8 million, a 5 percent increase over FY06, but well below its authorized level of $66.8 million. The Committee also notes its support for USFA's National Fire Academy training center.

From FY01 through FY03, USFA administered the (separately authorized) Assistance to Firefighters Grant Program, which is authorized by the Science Committee. This program provides direct assistance to local fire departments for training, purchase of equipment, and other purposes. The program is now run by the Office of Grants and Training within the new Preparedness Directorate at DHS. The FY07 budget request includes $293 million for the fire grant program. This is a $355 million cut from FY06, and more than $700 million less than is authorized under legislation signed into law in November 2004 (P.L. 108-375). In addition, the Administration has requested no funds for the SAFER Program, which awards grants to fire departments for the purpose of hiring new firefighters. SAFER is authorized at $1.1 billion in FY07 and received an appropriation of $106 million in FY05. The Committee feels that both of these important programs should receive higher funding.

National Earthquake Hazards Reduction Program (NEHRP)

NEHRP is an interagency program that Congress created in 1977 and reauthorized last November. It includes NSF, NIST, the Federal Emergency Management Agency (FEMA), and the U.S. Geological Survey (USGS), and aims to reduce the loss of life and property from earthquakes by improving emergency response, increasing understanding of earthquake risks, and improving earthquake engineering.

The President's overall FY05 request for NEHRP is $112 million, including $54.7, $55.4, and $1.7 million, for NSF, USGS, and NIST, respectively. Additional funding for NEHRP related activities will come from FEMA, but the amount of FEMA's FY07 budget request for this program is not available at this time. The Committee believes that NEHRP should be funded at

the levels in the *National Earthquake Hazards Reduction Program Reauthorization Act of 2004* (P.L. 108-360). The Committee is most concerned that the NEHRP budget request for NIST of only $1.7 million will not be enough to enable NIST to carry out its responsibilities as the lead agency for the program, a role previously performed by FEMA. The Committee believes that a minimum of $3.5 million is needed for NIST's lead agency tasks. The Committee also is concerned that the request for the Advanced National Seismic System (ANSS), a critical seismic monitoring program administered by USGS, is only $8.1 million, the same level as in FY06 and well below the authorized level of $36 million.

National Windstorm Impact Reduction Program (NWIRP)

The NWIRP was authorized in 2004 (also in P.L. 108-360) as an interagency effort geared towards improving scientific understanding of wind hazards and developing cost-effective measures to reduce their impact on lives and property through atmospheric research, code development, and creation of risk assessment tools. The participating agencies include NSF, NIST, FEMA, and NOAA. An implementation plan establishing one of the participating agencies as the lead for the program was due to Congress from the Office of Science and Technology Policy (OSTP) in October 2005 but has not been received.

Funding explicitly designated for NWIRP is not included in any of the participating agencies' budget requests for FY 2007, in spite of funding authorization totaling $25 million: $9.4 million for FEMA, $9.4 million for NSF, $4 million for NIST, and $2.2 million for NOAA. The Committee believes that coordination and funding of NWIRP is critically necessary to save lives and reduce the economic costs of windstorms, which average $1.1 billion annually.

SUBCOMMITTEE ON SPACE AND AERONAUTICS

National Aeronautics and Space Administration (NASA)

The budget request seeks $16.792 billion for NASA in FY07, an increase of 3.2% over the FY06 appropriation, excluding supplemental funding for Katrina-related damages.

As it made clear in the *NASA Authorization Act of 2005* (P.L. 109-155), the Committee wants to enable NASA to thrive as a multi-mission agency with robust activities in the human exploration of space, earth science, space science and aeronautics.

NASA has made significant progress in a number of areas since the Committee last prepared Views and Estimates. In the past year, NASA has achieved a greater degree of fidelity in its understanding of the costs and priorities of the programs within the agency. The new administrator, Michael Griffin, has overseen a number of changes and agenda-setting activities. NASA has completed the Exploration Systems Architecture Study (ESAS), providing the first baseline for pursuing the Vision for Space Exploration. Furthermore, the agency continues to identify and correct the safety concerns of the Space Shuttle and prepare for an orderly

completion of the Space Station and retirement of the Shuttle in 2010 after over 25 years of service to the nation. NASA has also begun restructuring its aeronautics research program.

The five-year budget projection for the Space Shuttle program is designed to fully fund the Shuttle through its retirement, making up for a shortfall in previous projections. Taking into account program transfers, the FY07 budget increases funding for the Space Shuttle by $2.2 billion through 2010 and for the Space Station by $1.5 billion.

Restoring funding for the Shuttle and Station accounts has come at the cost of slowed growth in NASA's other program areas. The Exploration Systems Mission Directorate, which oversees the Vision for Space Exploration, will receive $2 billion less through 2010, and NASA has replaced significant projected growth in the FY06 request for the Science Directorate with annual growth of 1.5 percent in FY07 and 1 percent thereafter, less than the projected rate of inflation.

The significantly reduced growth of the Science Directorate is of serious concern to the Committee. These reductions will necessitate the cancellation or lengthy deferral of several planned earth science and space science missions.

In FY07, the request increases the amount available for Exploration by $928 million compared to last year's appropriated level. This funding is focused on developing the next-generation hardware to replace the Shuttle, the Crew Exploration Vehicle and its launcher. NASA expects to award contracts for the new vehicle at the end of FY06. The request reduces the amounts available for other, longer-term activities within the Science Directorate.

The Committee is again concerned about the limited funding for NASA's Aeronautics program. The budget cuts the program by 18.1%, down to $724.4 million. Reductions of this size may jeopardize NASA's ability to retain critical skills and perform ground-breaking research in support of this nationally important industry.

Federal Aviation Administration (FAA)

The request for the FAA's Office of the Associate Administrator for Commercial Space Transportation (AST) is $12.0 million, an increase of $200,000 from FY06. The Committee continues to monitor the implementation of the *Commercial Space Launch Amendments Act of 2004* (P.L. 108-492) to ensure AST avoids overly burdensome or costly regulatory structures on the nascent commercial space industry.

The Committee is once again disappointed with the support given by the FAA to research and development. The budget request of $236.7 million falls short of addressing issues related to the agency's challenge of designing, developing and implementing a follow-on air traffic control system, while continuing to deal with ongoing safety-related research.

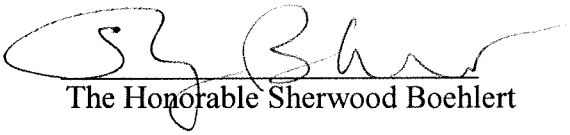
The Joint Planning and Development Office, located within the FAA's Air Traffic Organization, and authorized by the *Vision 100 - Century of Aviation Reauthorization Act* (P.L. 108-176), must receive greater agency attention if it is to succeed.

Department of Commerce – Office of Space Commercialization

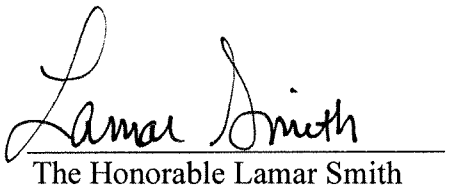
The Committee urges support for this Office, which has played a useful role in promoting the commercial space industry. The Office needs to take a stronger role within the government and increase their efforts to support U.S. commercial space providers.

Committee on Science – FY 2007 Views and Estimates

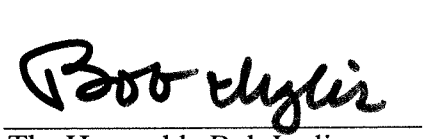
Member Signatures



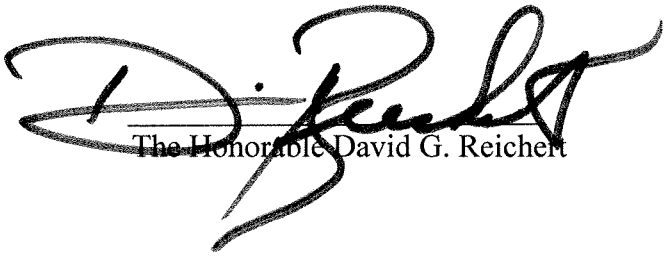
The Honorable Sherwood Boehlert



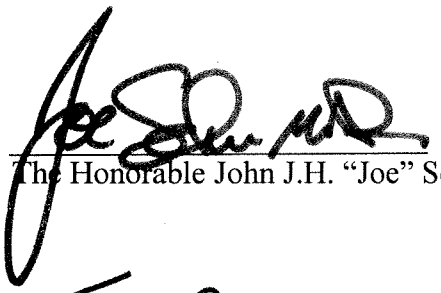
The Honorable Lamar Smith



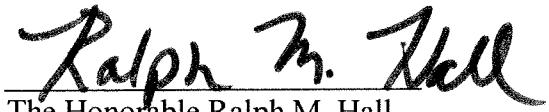
The Honorable Bob Inglis



The Honorable David G. Reichert

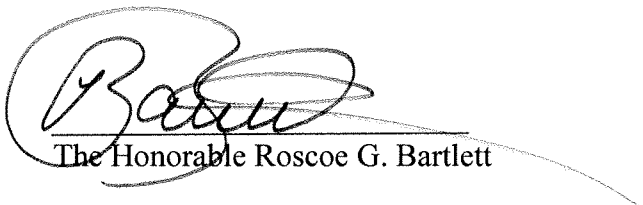


The Honorable John J.H. "Joe" Schwarz

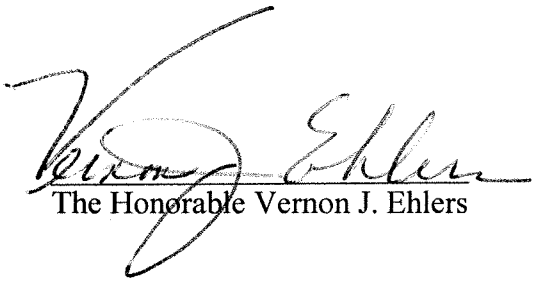


The Honorable Ralph M. Hall

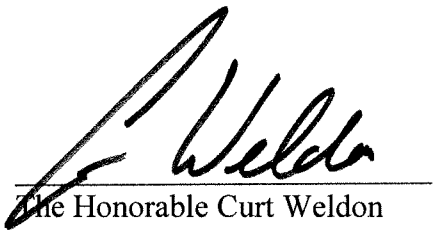
The Honorable Jo Bonner



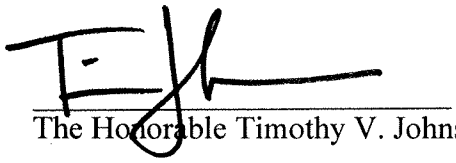
The Honorable Roscoe G. Bartlett



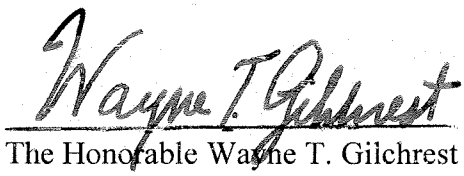
The Honorable Vernon J. Ehlers



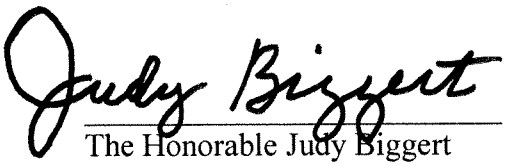
The Honorable Curt Weldon



The Honorable Timothy V. Johnson



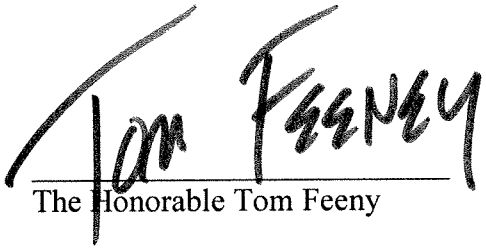
The Honorable Wayne T. Gilchrest



The Honorable Judy Biggert

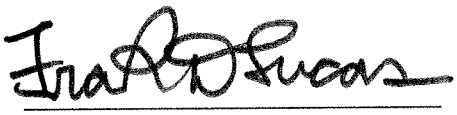
The Honorable Ken Calvert

The Honorable Michael T. McCaul

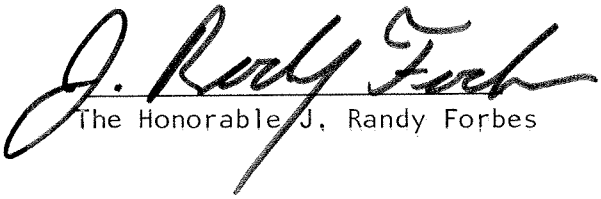


The Honorable Tom Feeny

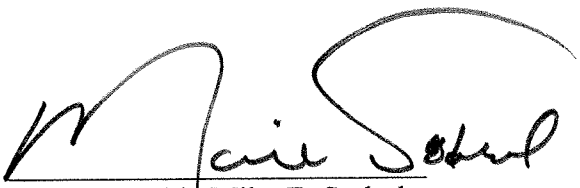
The Honorable Gil Gutknecht



The Honorable Frank D. Lucas



The Honorable J. Randy Forbes



The Honorable Mike E. Sodrel

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SCIENCE
ENERGY
SPACE AND AERONAUTICS

Additional Views
Committee on Science
Rep. Ralph M. Hall
February 16, 2006

I join with the Science Committee in supporting the President's Competitiveness Initiative. Economic growth in America depends on knowledge-based industries and resources. To that end, this year's budget proposal bolsters math and science education, extends research and development tax credits for businesses, and promotes basic and applied scientific research.

I would like to add to the Committee's Views and Estimates my concerns about provisions in the Administration's budget that request a termination of the oil and natural gas research and development programs at the Department of Energy. These technology programs develop vital research to enhance and sustain domestic oil and natural gas production. In keeping with the President's mission to wean America off foreign oil, these are precisely the type of programs that we need to be funding because the research is particularly significant to the independent producers who drill 90% of the nation's wells and produce 85% of the nation's natural gas. The independent sector differs substantially from the major multinational oil companies. They typically do not have in-house research and development capabilities and rely heavily on university collaboration.

The Department of Energy's programs have already proven to help producers achieve major increases in production quickly. For instance, these programs have helped develop technologies that enabled natural gas production from coalbed methane which

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accounts for about 10 percent of total domestic production. Likewise, Energy Fracture R&D programs helped develop natural gas tight sands reservoirs. Today tight sands production is about 17 percent of total domestic production.

Equally troubling is a proposal in the budget to eliminate the Ultra-deepwater and Unconventional Onshore Natural Gas Research and Development Program. Since its introduction in 2001, the provision has passed the House three times, the Senate once, and was included in the Energy Policy Act signed by the President last year. The program is expected to tap 1900 trillion cubic feet of recoverable reserves in North America—enough to meet 60 years of demand. The Energy Information Administration indicates that the program will save consumers $2.2 billion in 2015 and will pay for itself in the form of increased royalties to the Treasury. The program is a win-win for America. Not only do we get technologies that tap into American reserves and help wean us off foreign energy, but also we get a program that pays for itself.

This is a new program and a number of parties have already submitted bids. Therefore, this year is vital to making sure that the program gets off the ground. This is exactly the type of innovative research and development we need to tap domestic supplies and help meet America's energy needs in the foreseeable future. I support the goal of reducing America's dependence on oil and gas by 2025—but until that time, we must not abandon oil and gas research programs that will increase domestic production, help secure America's energy needs, and reduce the current dependence on foreign oil.

I urge Congress to continue to fund these vital programs that help ensure America's national and economic security.

Ralph M. Hall

U.S. HOUSE OF REPRESENTATIVES

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Additional Views and Estimates for Fiscal Year 2007
Committee on Science

I am of the same mind as the Science Committee as to most of the observations presented in the Views and Estimates, but I would like to comment further on the Advanced Technology Program (ATP) and Manufacturing Extension Partnership (MEP). When I was on the Budget Committee, we waged war against "corporate welfare." Many people attack ATP and MEP as the worst offenders and examples of the saying, "if you offer something for free, a line will form."

However, the government can and should support certain types of research and development, if (1) the technology faces barriers to adoption in the market, and (2) the national interest overrides the market's timing. Hydrogen is an excellent example of this. We need to reduce our dependence on foreign oil. The costs and technological barriers of a hydrogen economy slow the rate of adoption. Therefore, it is in our national interest to fund the research and development (and especially basic research).

It is difficult to demonstrate that the research & development performed in ATP meet the nation's priorities as opposed to the company's priorities. ATP funds applied research that companies would otherwise not do; that is their reason for being. But if the companies don't think this applied research and product development is part of their reason for being, and it is not in the nation's interest apart from that, why should the American people foot the bill? I concede to the issue being more complicated than that, but I am pleased to see that the Congress has pursued phasing-out the program in last year's appropriations.

MEP can be a challenge to criticize because it impacts individuals in a way that endears it to many people. Companies in my district have taken advantage of this program. However, the government helping small manufacturing firms to be more efficient cuts both ways. It champions the little guy, but sounds an awful lot like a handout aimed at specific types of businesses. I'm concerned that MEP is crowding out an entire industry of small businesses and entrepreneurs that could be providing consulting services to manufacturers. I support the President's request to reduce funding to this marginal program in a time where other initiatives deserve higher priority.

Sincerely,

Bob Inglis
Member of Congress